

SEQUENCE LISTING

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<110> GUERIN-MARCHAND, CLAUDINE
      DRUILHE, PIERRE
<120> PEPTIDE SEQUENCES SPECIFIC FOR THE HEPATIC STAGES OF
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<130> 010830-118
<140> 09/900,963
<141> 2001-07-10
<150> 08/098,327
<151> 1993-11-24
<150> PCT/FR92/00104
<151> 1992-02-05
<150> FR 91 01286
<151> 1991-02-05
<160> 47
<170> PatentIn Ver. 3.3
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Leu

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Glu
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Glu Lys Leu Gln Xaa Gln Gln Xaa Asp Leu Glu Gln Xaa Arg Xaa Ala
                                      10
                  5
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Lys
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Lys Glu Lys Leu Gln Xaa Gln Gln Xaa Asp Leu Glu Gln Xaa Arg Xaa
                                                           15
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Ala Lys Glu Lys Leu Gln Xaa Gln Gln Xaa Asp Leu Glu Gln Xaa Arg
                  5
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Arg Xaa Ala Lys Glu Lys Leu Gln Xaa Gln Gln Xaa Asp Leu Glu Gln
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                                      10
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Asp

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                                      10
Xaa
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<213> Plasmodium falciparum
<400> 19
Arg Lys Ala Asp Thr Lys Lys Asn Leu Glu Arg Lys Lys Glu His Gly
Asp Ile Leu Ala Glu Asp Leu Tyr Gly Arg Leu Glu Ile Pro Ala Ile
Glu Leu Pro Ser Glu Asn Glu Arg Gly Tyr Tyr Ile Pro His Gln Ser
                              40
         35
 Ser Leu Pro Gln Asp Asn Arg Gly Asn Ser Arg Asp Ser Lys Glu Ile
 Ser Ile Ile Glu Lys Thr Asn Arg Glu Ser Ile Thr Thr Asn Val Glu
                                          75
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Gly Arg Arg Asp Ile His Lys Gly His Leu Glu Glu Lys Lys Asp Gly 85 90 95

Ser Ile Lys Pro Glu Gln Lys Glu Asp Lys Ser 100 105

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<212> PRT

<213> Plasmodium falciparum

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1 5 10 15

Lys Asn Leu Glu Arg Lys Lys Glu His Gly Asp Ile Leu Ala Glu Asp 20 25 30

Leu Tyr Gly Arg Leu Glu Ile Pro Ala Ile Glu Leu Pro Ser Glu Asn 35 40 45

Glu Arg Gly Tyr Tyr Ile Pro His Gln Ser Ser Leu Pro Gln Asp Asn 50 55 60

Arg Gly Asn Ser Arg Asp Ser Lys Glu Ile Ser Ile Ile Glu Lys Thr 65 70 75 80

Asn Arg Glu Ser Ile Thr Thr Asn Val Glu Gly Arg Arg Asp Ile His

Lys Gly His Leu Glu Glu Lys Lys Asp Gly Ser Ile Lys Pro Glu Gln 100 105 110

Lys Glu Asp Lys Ser 115

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<212> PRT

<213> Plasmodium falciparum

<400> 21

Asp Thr Lys Lys Asn Leu Glu Arg Lys Lys Glu His Gly Asp Ile Leu 1 5 10 15

Ala Glu Asp Leu Tyr Gly Arg Leu Glu Ile Pro 20 25

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<212> PRT

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Gln Arg Lys Ala Asp Thr Lys Lys 20

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<212> PRT

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Glu Ser Ile Thr Thr Asn Val Glu Gly Arg Arg Asp Ile His Lys 20 25 30

<210> 24

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<212> PRT

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Arg Asp Glu Leu Phe Asn Glu Leu Leu Asn Ser Val Asp Val Asn Gly
1 5 10 15

Glu Val Lys Glu Asn Ile Leu Glu Glu Ser Gln Val Asn Glu Asp Ile 20 25 30

Phe Asn Ser Leu Val Lys Ser Val Gln Gln Gln Gln Gln His Asn Val 35 40 45

Glu Glu Lys Val Glu Glu Ser Val Glu Glu Asn Asp Glu Glu Ser Val 50 55 60

Glu Glu Asn Val Glu Glu Asn Val Glu Glu Asn Asp Asp Gly Ser Val
65 70 75 80

Ala Ser Ser Val Glu Glu Ser Ile Ala Ser Ser Val Asp Glu Ser Ile 85 90 95

Asp Ser Ser Ile Glu Glu Asn Val Ala Pro Thr Val Glu Glu Ile Val

Ala Pro Thr Val Glu Glu Ile Val Ala Pro Ser Val Val Glu Lys Cys 115 120 125

Ala Pro Ser Val Glu Glu Ser Val Ala Pro Ser Val Glu Glu Ser Val 130 135 140

Ala Glu Met Leu Lys Glu Arg 145 150

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<213> Plasmodium falciparum
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                5
Glu Val Lys Glu Asn Ile Leu Glu Glu Ser Gln Val Asn Asp Asp Ile
                                 25
Phe Asn Ser Leu Val Lys Ser Val Gln Gln Glu Gln His Asn
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Asp Glu Leu Phe Asn Glu Leu Leu Asn Ser Val Asp Val Asn Gly Glu
Val Lys Glu Asn Ile Leu Glu Glu Ser Gln
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Leu Glu Glu Ser Gln Val Asn Asp Asp Ile Phe Ser Asn Ser Leu Val
                                     10
Lys Ser Val Gln Gln Gln Gln His Asn Val
            20
<210> 28
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Glu Glu Ser Val Ala Glu Met Leu Lys Glu Arg

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Gln Ser Asp Leu Glu Gln Asp Arg Leu Ala Lys Glu Lys Leu Gln Glu
Gln Gln Ser Asp Leu Glu Gln Glu Arg Leu Ala Lys Glu Lys Leu Gln
Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu
Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys
Leu Gln Glu Gln Ser Asp Leu Glu Gln Asp Arg Leu Ala Lys Glu
Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys
                                 105
 Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala
                             120
 Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Leu
 Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg
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150

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Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu
                                    170
Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln
                                185
Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Arg Asp Leu Glu
Gln Arg Lys Ala Asp Thr Lys Lys Asn Leu Glu Arg Lys Lys Glu His
                        215
Gly Asp Ile Leu Ala Glu Asp Leu Tyr Gly Arg Leu Glu Ile Pro Ala
Ile Glu Leu Pro Ser Glu Asn Glu Arg Gly Tyr Tyr Ile Pro His Gln
                                    250
                245
Ser Ser Leu Pro Gln Asp Asn Arg Gly Asn Ser Arg Asp Ser Lys Glu
                                265
Ile Ser Ile Ile Glu Lys Thr Asn Arg Glu Ser Ile Thr Thr Asn Val
Glu Gly Arg Arg Asp Ile His Lys Gly His Leu Glu Glu Lys Lys Asp
                        295
Gly Ser Ile Lys Pro Glu Gln Lys Glu Asp Lys Ser
                    310
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tagaacaaga tagacttgct aaagaaaagt tacaagagca gcaaagcgat ttagaacaag 120
agagacttgc taaagaaaag ttgcaagaac aacaaagcga tctagaacaa gagagacgtg 180
ctaaagaaaa gttgcaagaa caacaaagcg atttagaaca agagagacgt gctaaagaaa 240
agttgcaaga acaacaaagc gatttagaac aagatagact tgctaaagaa aagttacaag 300
agcagcaaag cgatttagaa caagagagac gtgctaaaga aaagttgcaa gaacaacaaa 360
gcgatttaga acaagagaga cgtgctaaag aaaagttgca agaacaacaa agcgatttag 420
aacaagagag acttgctaaa gaaaagttgc aagaacaaca aagcgattta gaacaagaga 480
gacgtgctaa agaaaagttg caagaacaac aaagcgattt agaacaagag agacgtgcta 540
aagaaaagtt gcaagaacaa caaagcgatt tagaacaaga gagacgtgct aaagaaaagt 600
tgcaagagca gcaaagagat ttagaacaaa ggaaggctga tacgaaaaaa aatttagaaa 660
gaaaaaagga acatggagat atattagcag aggatttata tggtcgttta gaaataccag 720
ctatagaact tccatcagaa aatgaacgtg gatattatat accacatcaa tcttctttac 780
ctcaggacaa cagagggaat agtagagatt ccaaggaaat atctataata gaaaaaacaa 840
atagagaatc tattacaaca aatgttgaag gacgaaggga tatacataaa ggacatcttg 900
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<213> Plasmodium falciparum

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agtgttcaac aagaacaaca acacaatgtt gaagaaaaag ttgaagaaag tgtagaagaa 180
aatgacqaaq aaagtgtaga agaaaatgta gaagaaaatg tagaagaaaa tgacgacgga 240
agtgtagcct caagtgttga agaaagtata gcttcaagtg ttgatgaaag tatagattca 300
agtattgaag aaaatgtagc tccaactgtt gaagaaatcg tagctccaac tgttgaagaa 360
attgtagete caagtgttgt agaaaagtgt getecaagtg ttgaagaaag tgtageteca 420
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actttatcct tgttaattta ttgatatttc atataaatgg aaagataata aagaattctg 120
aaaaagatga aatcataaaa tctaacttga gaagtggttc ttcaaattct aggaatcgaa 180
taaatgagga aaatcacgag aagaaacacg ttttatctca taattcatat gagaaaacta 240
aaaataatga aaataataaa tttttcgata aggataaaga gttaacgatg tctaatgtaa 300
aaaatgtgtc acaaacaaat ttcaaaagtc ttttaagaaa tcttggtgtt tcagagaata 360
tattccttaa agaaaataaa ttaaataagg aagggaaatt aattgaacac ataataaatg 420
atgatgacga taaaaaaaaa tatattaaag ggcaagacga aaacagacaa gaagatcttg 480
aagaaaaagc agctaaagaa aagttacagg ggcaacaaag cgattcagaa caagagagac 540
gtgctaaaga aaagttgcaa gaacaacaaa gcgatttaga acaagagaga cttgctaaag 600
aaaagttgca agaacaacaa agcgatttag aacaagagag acgtgctaaa gaaaagttgc 660
aagaacaaca aagcgattta gaacaagaga gacttgctaa agaaaagttg caagaacaac 720
aaagcgattt agaacaagag agacgtgcta aagaaaagtt gcaagaacaa caaagcgatt 780
tagaacaaga gagacgtgct aaagaaaagt tgcaagaaca acaaagcgat ttagaacaag 840
agagacttgc taaagaaaag ttacaagagc agcaaagcga tttagaacaa gatagacttg 900
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ggttgcaaga acaacaaagc gatttaga
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Glu Île Île Lys Ser Asn Leu Arg Ser Gly Ser Ser Asn Ser Arg Asn 40 45

Arg Ile Asn Glu Glu Asn His Glu Lys Lys His Val Leu Ser His Asn 50 55 60

Ser Tyr Glu Lys Thr Lys Asn Asn Glu Asn Asn Lys Phe Phe Asp Lys 65 70 75 80

Asp Lys Glu Leu Thr Met Ser Asn Val Lys Asn Val Ser Gln Thr Asn 85 90 95

Phe Lys Ser Leu Leu Arg Asn Leu Gly Val Ser Glu Asn Ile Phe Leu 100 105 110

Lys Glu Asn Lys Leu Asn Lys Glu Gly Lys Leu Ile Glu His Ile Ile 120 Asn Asp Asp Asp Lys Lys Lys Tyr Ile Lys Gly Gln Asp Glu Asn 135 Arg Gln Glu Asp Leu Glu Glu Lys Ala Ala Lys Glu Lys Leu Gln Gly 150 145 Gln Gln Ser Asp Ser Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln 170 Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Leu Ala Lys Glu Lys Leu 185 Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys 200 Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Leu Ala Lys Glu 215 Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys 235 230 Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala 250 Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Leu 265 260 Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Asp Arg 280 Leu Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu 295 Arg Arg Ala Lys Glu Arg Leu Gln Glu Gln Gln Ser Asp Leu 315 310 <210> 39 <211> 1493 <212> DNA <213> Plasmodium falciparum <400> 39

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aag tta caa gag cag caa agc gat tta gaa caa gag aga ctt gct aaa
                                                                   144
Lys Leu Gln Gln Gln Ser Asp Leu Glu Gln Glu Arg Leu Ala Lys
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 gaa aag ttg caa gaa caa caa agc gat cta gaa caa gag aga cgt gct
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					Gln					Asp	tta Leu				Arg	288
											gat Asp					336
aga Arg	cgt Arg	gct Ala 115	aaa Lys	gaa Glu	aag Lys	ttg Leu	caa Gln 120	gaa Glu	caa Gln	caa Gln	agc Ser	gat Asp 125	tta Leu	gaa Glu	caa Gln	384
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gat Asp	tcc Ser	aag Lys 275	Glu	ata Ile	tct Ser	ata Ile	ata : Ile 280	Glu	aaa Lys	aca Thr	aat Asn	aga Arg 285	Glu	tct Ser	att	864

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 85 90 95
- Leu Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu 100 105 110
- Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln 115 120 125
- Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu 130 135 140
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- Lys Lys Glu His Gly Asp Ile Leu Ala Glu Asp Leu Tyr Gly Arg Leu 225 230 235 240
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Gly 385	Ile	Tyr	Lys	Glu	Leu 390	Glu	Asp	Leu	Ile	Glu 395	Lys	Aśn	Glu	Asn	Leu 400	
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Glu	Lys	Ile	Lys 420	Lys	Gly	Lys	Lys	Tyr 425	Glu	Lys	Thr	Lys	Asp 430	Asn	Asn	
Phe	Lys	Pro 435		Asp	Lys	Ser	Leu 440		Asp	Glu	His	Ile 445	Lys	Lys	Tyr	
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Leu 465		His	Ile	Phe	Asp 470		Asp	Asn	Glu	11e 475		Gln	Ile	Val	Asp 480	
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gat Asp	gat Asp	tta Leu	ı gat ı Asp	gaa Glu 405	Gly	ata Ile	gaa Glu	aaa Lys	tca Ser 410	Ser	gaa Glu	ı gaa ı Glu	tta Leu	Ser 415	gaa Glu	1248

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aaa aat gat aag cag gtt aat aag gaa aag gaa aaa ttc ata aaa tca Lys Asn Asp Lys Gln Val Asn Lys Glu Lys Glu Lys Phe Ile Lys Ser 450 460	1392
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Leu Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu 100 105 110	
100 105 110 Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln	

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- Lys Lys Glu His Gly Asp Ile Leu Ala Glu Asp Leu Tyr Gly Arg Leu 225 230 235 240
- Glu Ile Pro Ala Ile Glu Leu Pro Ser Glu Asn Glu Arg Gly Tyr Tyr 245 250 255
- Ile Pro His Gln Ser Ser Leu Pro Gln Asp Asn Arg Gly Asn Ser Arg 260 265 270
- Asp Ser Lys Glu Ile Ser Ile Ile Glu Lys Thr Asn Arg Glu Ser Ile 275 280 285
- Thr Thr Asn Val Glu Gly Arg Arg Asp Ile His Lys Gly His Leu Glu 290 295 300
- Glu Lys Lys Asp Gly Ser Ile Lys Pro Glu Gln Lys Glu Asp Lys Ser 305 310 315
- Ala Asp Ile Gln Asn His Thr Leu Glu Thr Val Asn Ile Ser Asp Val 325 330 335
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- Phe Lys Pro Ile Val Gln Tyr Asp Asn Phe Gln Asp Glu Glu Asn Ile 370 375 380
- Gly Ile Tyr Lys Glu Leu Glu Asp Leu Ile Glu Lys Asn Glu Asn Leu 385 390 395 400
- Asp Asp Leu Asp Glu Gly Ile Glu Lys Ser Ser Glu Glu Leu Ser Glu 405 410 415
- Glu Lys Ile Lys Lys Gly Lys Lys Tyr Glu Lys Thr Lys Asp Asn Asn 420 425 430
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Leu Phe His Ile Phe Asp Gly Asp Asn Glu Ile Leu Gln Ile Val Asp 465 470 475 480

Glu Leu Ser Glu Asp Ile Thr Lys Tyr Phe Met Lys Leu \$485\$